

# CLAIMS

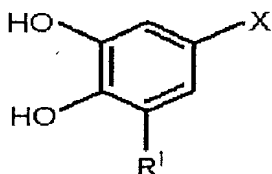
- 1 Synthetic vegetal melanins obtainable by in vitro polymerization of at least one monomer unit (a), and optionally at least one compound (b), wherein.

(a) is a plant polyphenol; and

(b) is an eumelanin precursors;

said synthetic vegetal melanin being characterized by a Red.Green Blue ratio comprised between 1 . 0.88 . 0.84 and 1 . 0.64 . 0.41.

- 2 Synthetic vegetal melanins according to claim 1, wherein the plant polyphenol is a vegetal substance of formula (I).

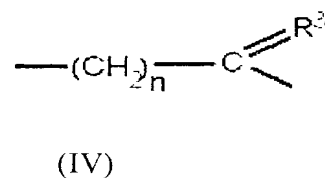
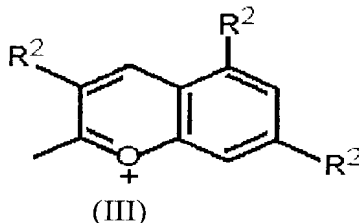
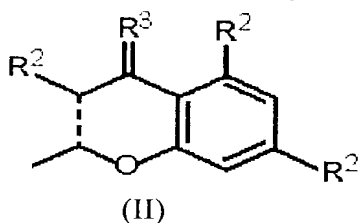


(I)

wherein:

R¹ represents hydrogen, hydroxy, or methoxy group; and

X represents a residue of formulas (II), (III) or (IV)



wherein.

n is 0, 1 or 2;

R² represent, each independently, hydrogen, hydroxy, methoxy, or an O-glycosilated group,

R³ represents, one oxygen, two hydrogen atoms, or one hydrogen and one hydroxy group, and

the phantom line between C₂ -C₃ represents a double or a single bond, as well as salts, esters and solvates thereof.

- 3 Synthetic vegetal melanins according to claims 1 to 2, wherein the plant

30 11. Method of claim 10, wherein the enzyme is selected in the group consisting in tyrosinases, polyphenoloxidases (catechol oxidases), phenolases,

(phenoloxidas), peroxidas, laccas, lypoxigenas, and mixture thereof

- 12 Method according to claims 10 to 12 wherein the monomer units (a) or (b) are formed in situ from the pre-monomers, bearing a monophenolic moiety
13. Method of claim 12 where the pre-monomers are selected in the group  
5 consisting in dihydrokaempferol, armadendrin, p-hydroxybenzaldehyde, PHBA, tyrosol, p-coumaric acid, apigenin, kaempferol, pelargonin, genistein, tyrosine, tyramine, 5-hydroxy-indole and mixture thereof.
14. Cosmetic composition comprising as active ingredient at least one synthetic vegetal melanins according to claims 1 to 6.
- 10 15. Cosmetic composition according to claim 14, for facial make-up, hair dyes, tanning, anti-sun, toiletry, moisturizing and protecting skin.
16. Pharmaceutical or nutritional composition having anti-inflammatory and immunomodulation activity which comprises as active ingredient at least a synthetic vegetal melanin according to claims 1 to 6.